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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.                 | CONFIRMATION NO. |
|--|-------------|----------------------|-------------------------------------|------------------|
| 09/974,576   | 10/09/2001  | Aris Papasakellariou | TI-32075                            | 8287             |
| 23494  | 7590        | 02/17/2004           |                                     |                  |
| TEXAS INSTRUMENTS INCORPORATED<br>P O BOX 655474, M/S 3999<br>DALLAS, TX 75265 |             |                      |                                     |                  |
|  |             |                      | EXAMINER<br>GHEBRETINSAE, TEMESGHEN |                  |
|  |             |                      | ART UNIT<br>2631                    | PAPER NUMBER     |

DATE MAILED: 02/17/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/974,576

Applicant(s)

PAPASAKELLARIOU ET AL.

Examiner

Temesghen Ghebretinsae

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 3-9 is/are allowed.
- 6) ☒ Claim(s) 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2</u> . | 6) <input type="checkbox"/> Other: ____.  |

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### **DETAILED ACTION**

It would be of great assistance to the Office if all incoming papers pertaining to a filed application carried the following items:

1. Application number (checked for accuracy, including series code and serial no.).
2. Group art unit number (copied from most recent Office communication).
3. Filing date.
4. Name of the examiner who prepared the most recent Office action.
5. Title of invention.
6. Confirmation number (See MPEP § 503).

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "multiplier coupled to the decision circuit and channel estimation unit" of claim 7 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

Claim 1 and 7 are objected to because of the following informalities: in claim 1, "the received spread spectrum signal" should be ---a received spread spectrum signal---. In claim 7, the word "subtacting" should be ---subtracting---. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 is not clear. If step (h) is performed before step (g) then in step (h) "the subtraction result" can not be added to the interference free estimate of the despread signal path. (What is added in step (h)?).

***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fail to anticipate or render obvious the claimed interference cancellation circuit for use in a spread spectrum code division multiple access (CDMA) receiver, the interference cancellation circuit comprising: a multiplier coupled to the decision circuit and channel estimation unit, for providing an interference-free estimate for each despread signal path of each CDMA code; a second despreader circuit coupled to the regeneration circuit, for despreading the regenerated signal estimate at every time instant corresponding to all identified signal paths for every CDMA code; a subtractor coupled to the first and second despreader circuits for subtracting the despread regenerated signal estimate from the despread signal for each of the signal paths and for each of the CDMA codes; an adder coupled to the subtractor and multiplier for adding the estimate of the interference-free despread signal path to the output of the subtractor for the same despread signal path and for each CDMA code; and a second decision circuit coupled to the adder for performing a decision for the

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information signal carried in the spread spectrum signal for each CDMA code *in combination* with a first despreader circuit for despreading a received spread spectrum signal; a first decision circuit coupled to the despreader for performing a decision for an information symbol carried in the spread spectrum signal for each CDMA code; a channel estimation circuit coupled to the despreader circuit for obtaining an estimate of the channel medium for each path of the received spread spectrum signal; and a regeneration circuit coupled to the decision circuit and channel estimation circuit for providing a regenerated spread spectrum signal estimate by regenerating and summing the received signals for each CDMA code and each signal path in the manner and complexity explicitly claimed in claim 1 and 7.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Temesghen Ghebretinsae whose telephone number is 703-305-4777. The examiner can normally be reached on Monday-Friday from 8 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour, can be reached on 703-306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T.G.

2/13/04.

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TEMESGHEN GHEBRETINSAE  
PRIMARY EXAMINER